

Incarcerated Internal Hernia of the Small Intestine Through a Breach of the Broad Ligament: Two Cases and a Literature Review

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ABSTRACT

Two cases of internal herniation through a defect in the broad ligament of the uterus are described. Both were successfully treated laparoscopically. This rare condition should be borne in mind when a middle-aged woman presents with colicky lower abdominal pain. The cause is unknown, but both congenital and acquired origins have been proposed. As far as emergency situations are concerned, laparoscopy has proven to be both a diagnostic and a therapeutic tool.

Key Words: Broad ligament, Laparoscopy, Small bowel obstruction.

INTRODUCTION

Laparoscopy is being used ever more frequently for diagnosing and treating acute abdominal pain.¹⁻⁵ The surgical indication is difficult to establish in some cases (more than 40%). Acute abdominal pain in women may be a manifestation of a disorder of various organs. In addition to surgical, urological, orthopedic, neurological, and psychogenic problems, gynecological causes play a major role.¹⁻⁵ Incarcerated herniation of the bowel, occurring through a defect in the broad ligament, is extremely rare.⁶⁻⁸ A differential diagnosis may be difficult to obtain. We herein report the 2 cases of women with intestinal obstruction, neither of whom had a previous history of any surgical pelvic treatment. The laparoscopic approach revealed in both cases an incarceration of the small bowel herniated through a defect in the broad ligament. Without the antecedent of uterine surgery, delivery trauma, and pelvic diseases, congenital abnormalities are considered the causes of these defects although the real mechanism is unknown.⁶⁻⁸ This cause should therefore be considered in the differential diagnosis of female patients presenting with an intestinal obstruction who have not had a prior laparotomy.

CASE REPORT ONE

A 38-year-old gravida 1, para 1, woman was admitted to our hospital with a chief complaint of lower abdominal colicky pain and vomiting of 1 day's duration. Her relevant past medical history included a laparoscopic appendectomy performed 7 years previously and a diagnosis, in the same setting, of endometriosis, since then successfully treated with medical therapy. The patient was afebrile with stable vital signs. A clinical examination disclosed diffuse tenderness without peritoneal signs. The abdomen was slightly distended and tympanic with diminished bowel sounds. A normal bowel movement had occurred 2 days earlier. Pelvic and rectal examinations were unremarkable. Laboratory findings showed slight leucocytosis, and a plain abdominal radiograph showed some loops of dilated small bowel with air fluid levels. Ultrasonography confirmed the small bowel obstruction and disclosed the presence of fluid in the pelvis. With the diagnosis of intestinal obstruction of unknown origin, the patient was

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operated upon. Because abdominal distension was moderate, a laparoscopic approach was performed with 3 trocars, instruments, and optics 5-mm in diameter. A 30-cm long ileal loop was found to have herniated through a defect in the right broad ligament. The small bowel, once reduced, appeared vital. A 2x3-cm defect was noted, and it was closed by using a purse-string 2/0 monofilament absorbable suture. The postoperative course was uneventful, with bowel movement and hospital discharge on the first and fourth postoperative days, respectively.

CASE REPORT TWO

A 55-year-old gravida 2, para 2 woman was admitted to our department with symptoms of colicky pain and nausea but no vomiting for the previous 2 days. The last normal bowel movement occurred the day before hospital admission. The patient had no previous relevant medical history. Most notable, she had no history of prior abdominal or pelvic surgery or pelvic inflammatory disease. On examination, the abdomen was marginally distended with slight tenderness without peritoneal signs. Vaginal and rectal examinations were normal. All hematological and biochemical investigations were normal. As with the previous case, a plain abdominal radiograph showed some loops of dilated small bowel with no air fluid levels. Ultrasonography confirmed the small bowel obstruction and disclosed the presence of fluid in the pelvis. Due to a diagnosis of intestinal obstruction of unknown origin, the patient was taken into the operating room and a laparoscopic approach was used in the same manner as the case described above. A 20-cm long ileal loop was found to have herniated through a fenestration of the left broad ligament. As above, the small bowel, once reduced, appeared vital, and a defect of 1x3 cm was seen and closed by using a purse-string monofilament absorbable 2/0 suture. The postoperative course was uneventful, with bowel movement and hospital discharge on the first and third postoperative days, respectively.

DISCUSSION

Surgeons treating a patient with lower abdominal pain of uncertain origin are caught between the extremes of conservative and operative treatment.¹⁻⁵ After clinical examination and ultrasonography, exploratory laparoscopy has been shown by several studies to solve this therapeutic dilemma.⁴ A corollary to the application of diagnostic laparoscopy is the potential for therapeutic manipulation during the same setting.⁴ Internal hernias represent only

0.4% to 4.1% of all small bowel incarcerations, and of these, the hernias through a defect of the broad ligament represent only 4% to 7%.⁶⁻⁸ Regarding their "cause," they are thought to be either congenital or acquired.⁶ The congenital ones are a consequence of a spontaneous rupture of congenital cystic structures within the broad ligament reminiscent of the mesonephric or Müllerian ducts. This hypothesis could account for those patients who are nulliparous or have never undergone pelvic surgery.⁶⁻⁸ An acquired defect may result from either operative trauma, pregnancy and birth trauma, or prior pelvic inflammatory disease. They have therefore been frequently reported in multiparous patients, patients who have undergone a surgical pelvic procedure, and patients with a history of salpingitis or endometriosis.⁶⁻⁸ One of our patients had only a history of multiple pregnancies and deliveries, and the other patient with endometriosis had an appendectomy. A classification of broad ligament defects has been proposed based on their anatomical position: type 1 defect, which occurs throughout the entire broad ligament; type 2, which occurs throughout the mesosalpinx and the mesovarium; and type 3, which occurs throughout the meso-ligamentum teres.⁷ Both of our patients presented with a type 1 defect. Plain film radiography because of its low sensitivity and specificity helps little in the diagnosis of most causes of abdominal pain due to gynecological disorders. Other radiological investigations, such as either ultrasonography or CT scan, or both used together, are expensive and not possible to perform in all hospital situations, 24 hours a day.¹⁻⁵ Diagnostic laparoscopy, with an accuracy of more than 90% has been demonstrated to be superior to other diagnostic tools and may lead to the correction of an erroneous preoperative diagnosis in up to 40% of patients, or it may be used to exclude other pathologies.¹⁻⁵ A corollary to the application of diagnostic laparoscopy is the potential for therapeutic manipulation during the same setting, which has been reported in the literature to be more than 80%.⁴ The goal of surgical treatment includes reduction of the intestinal loop (its resection, if needed), and direct closure of the opening to avoid any recurrence. Only one report exists in literature, to the best of our knowledge, of a pathology totally diagnosed and treated by using laparoscopy.⁶ For more than 10 years, we have been using laparoscopy routinely in both scheduled and emergency situations, if no absolute contraindication to the technique is present. In both cases reported herein, the laparoscopic approach was possible to perform due to the mild intestinal gas distension. Intestinal resection was not necessary, and we closed the opening of the broad ligament with a purse-string absorbable suture.

CONCLUSION

Early diagnosis and, if possible, therapeutic laparoscopy is cost-effective in many scenarios dealing with managing nonspecific acute (low) abdominal pain, especially in women of reproductive age.¹⁻⁸ Thus, the following is perfectly applicable to the 2 cases we have report herein: both were rare gynecological pathologies causing small bowel obstruction that were diagnosed and treated in the same setting with good results and perceptions of the patients. We do think that laparoscopy is not an alternative to physical examination and conventional noninvasive diagnostic methods in any acute abdominal situation. However, it must be considered an effective option in patients in whom these methods fail, especially as surgeons become more experienced and skilled.

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